Epitomes

Important Advances in Clinical Medicine

Orthopedics

The Scientific Board of the California Medical Association presents the following inventory of items of progress in orthopedics. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in orthopedics that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Orthopedics of the California Medical Association and the summaries were prepared under its direction.

Reprint requests to Division of Scientific and Educational Activities,
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Ischemic Necrosis of the Femoral Head

THE CAUSE of ischemic necrosis of the femoral head is unknown except in displaced fractures of the femoral neck, Gaucher's disease and decompression sickness (air embolism). This disorder occurs frequently in patients with alcoholism and those who have had large doses of corticosteroids. The cause is controversial although there is some evidence that alcohol and steroids produce fat cell and fat metabolism aberrations that affect and encroach on the intramedullary vascular system, thus producing an avascular area in the femoral head. In many cases the necrosis is idiopathic.

Diagnosis depends on taking a careful history and the results of a physical examination and x-ray evaluation. Supportive evidence may be supplied by radioisotopic scanning and laminography. Frequently radiographic findings are inconclusive so that diagnosis will depend on the results of a careful dynamic pressure study and core biopsy.

Treatment is based on the six-stage classification of Marcus and others. Stages V and VI are essentially the same and can be combined. In stages I and II, core biopsy with decompression or bone grafting techniques are effective in more than 85% of cases. These surgical procedures are not satisfactory in later stages, during which replacement arthroplasty, osteotomy and osteochondral allografts are more viable options. Electrical stimulation has been advocated recently as a promising technique for treatment; however, the evidence to support this suggestion is at best weak.

Until the cause of femoral head osteonecrosis has been clarified and preventive treatment devised, a surgical procedure is the best available treatment. Early recognition and surgical treatment during stages I and II offer the best hope for salvaging a diseased femoral head. Osteotomy and allograft techniques may prove successful during the advanced stages (III and IV), but failure of these procedures will necessitate a replacement operation, which is less than ideal.

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Myocutaneous Flap for Soft Tissue Reconstruction

THE MYOCUTANEOUS FLAP has become a versatile and safe procedure for soft tissue reconstruction. If done properly, it provides skin and soft tissue coverage with tissue that has a rich blood supply, a large and long vascular pedicle and highly predictable anatomy. The technique is especially useful in covering the large areas of skin and soft tissue lost following trauma, infection, tumor resection or in scarred or irradiated recipient beds. In addition to wound coverage, myocutaneous flaps are useful to restore form, contour and function.

Myocutaneous flaps have been used in a number of ways. (1) A flap can be raised, leaving its vascular pedicle attached. The flap can then be rotated to cover an adjacent defect without interruption of its blood supply. An example of this is a latissimus dorsi myocutaneous flap rotated to cover a posterior midline exposed Harrington rod. (2) The muscle alone can be transferred with its blood supply if the addition of the overlying skin and fat will make the flap too bulky. In this case a split-thickness skin graft is placed over the muscle belly. (3) With the development of microvascular techniques it is possible to transfer a free vascularized muscle or myocutaneous flap to a distant wound in one stage. An example of this is using a free vascularized latissimus dorsi flap to cover an open